



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,247	09/26/2003	Charles M. Milliren	34563US1	8704
116	7590	05/10/2006	EXAMINER	
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			VO, HAI	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,247

Applicant(s)

MILLIREN ET AL.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9,11,13 and 16-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9,11,13 and 16-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1771

1. All of the art rejections are withdrawn because neither Donzis (US 4,513,449) nor Krent et al (US 5,423,087) teaches or suggests a viscoelastic foam. However, upon further consideration, new grounds of rejections are made in view of newly discovered references Hager et al (US 6,391,935) and Bastin et al (US 6,051,624) and Moore, III (US 6,453,476).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2, 3, 7-9, 22, 25, 26, 30 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification discloses the viscoelastic foam having a partially closed cell **and** partially open cell structure. Support for the flexible open cell viscoelastic foam, semi-rigid viscoelastic foam is not found in the original disclosure. The viscoelastic foam may behave like a semi-rigid foam, but nothing in the specification has defined that the viscoelastic foam is semi-rigid. The same token is applied to a glass transition temperature. It appears that a subject matter described in the claims is a combination of two embodiments related to

Art Unit: 1771

two distinct inventions, i.e. a flexible open cell foam and a viscoelastic foam.

This raises the issue of new matter.

Claim Objections

4. Claims 7-9, 17, 22, 25, 26, 30 and 31 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The viscoelastic foam itself has both open cells and close cells as disclosed at page 9 of the present specification. Claim 7 appears not to further limit the subject matter of claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9, 11, 13, and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis (US 4,513,449) in view of Bastin et al (US 6,051,624). Donzis teaches a structure comprising a foam substrate and a fabric having a polyurethane coating that encloses the foam substrate (figure 4 and column 7, lines 55-60). The polyurethane coating is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam (column 5, lines 47-48). The fabric having a polyurethane

Art Unit: 1771

coating comprises a plurality of vent holes 32 along the edge 30 (figure 4).

Likewise, the structure is less rigid adjacent the zones that are closed to the edge than those that are away from the edge. Figure 9 shows that the fabric having the polyurethane coating and the foam substrate are attached to each other to form into one piece. Likewise, the fabric having the polyurethane coating is formed integrally with the foam substrate. The fabric is heat laminated to the foam substrate. Likewise, the structure is seamless. Donzis does not teach a polyurethane foam being a viscoelastic foam. Bastin, however, teaches an energy absorbing polyurethane foam having been used widely in the protective clothing for motorcyclists. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the flexible open cell polyurethane foam with a viscoelastic foam as taught by Bastin motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

The resulting shock absorbing athletic equipment of Donzis as modified by Bastin having a foam substrate made from a viscoelastic polyurethane foam which would inherently have a glass transition temperature within the claimed range because like material has like property. The same token is applied to energy absorptive property and the recovery property.

7. Claims 1-9, 11, 13, 16 and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis (US 4,513,449) in view of Hager et al (US 6,391,935). Donzis teaches a structure comprising a foam substrate and a fabric having a

polyurethane coating that encloses the foam substrate (figure 4 and column 7, lines 55-60). The polyurethane coating is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam (column 5, lines 47-48). The fabric having a polyurethane coating comprises a plurality of vent holes 32 along the edge 30 (figure 4). Likewise, the structure is less rigid adjacent the zones that are closed to the edge than those that are away from the edge. Figure 9 shows that the fabric having the polyurethane coating and the foam substrate are attached to each other to form into one piece. Likewise, the fabric having the polyurethane coating is formed integrally with the foam substrate. The fabric is heat laminated to the foam substrate. Likewise, the structure is seamless. Donzis does not teach the polyurethane foam being a viscoelastic foam. Hager, however, teaches a viscoelastic polyurethane foam having been used widely in the protective clothing for motorcyclists. Hager discloses the viscoelastic foam having a density within the claimed range. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the flexible open cell polyurethane foam with a viscoelastic foam as taught by Hager motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

The resulting shock absorbing athletic equipment of Donzis as modified by Hager having a foam substrate made from a viscoelastic polyurethane foam which would inherently have a glass transition temperature within the claimed

Art Unit: 1771

range because like material has like property. The same token is applied to energy absorptive property and the recovery property.

8. Claims 1-9, 11, 13, and 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis (US 4,513,449) in view of Moore, III (US 6,453,476). Donzis teaches a structure comprising a foam substrate and a fabric having a polyurethane coating that encloses the foam substrate (figure 4 and column 7, lines 55-60). The polyurethane coating is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam (column 5, lines 47-48). The fabric having a polyurethane coating comprises a plurality of vent holes 32 along the edge 30 (figure 4). Likewise, the structure is less rigid adjacent the zones that are closed to the edge than those that are away from the edge. Figure 9 shows that the fabric having the polyurethane coating and the foam substrate are attached to each other to form into one piece. Likewise, the fabric having the polyurethane coating is formed integrally with the foam substrate. The fabric is heat laminated to the foam substrate. Likewise, the structure is seamless. Donzis does not teach a polyurethane foam being a viscoelastic foam. Moore, however, teaches a viscoelastic polyurethane foam having been used widely in the protective helmet for motorcyclists. Moore discloses the viscoelastic foam having a glass transition temperature within the claimed range. Moore is using the viscoelastic foam under the same trade name as Applicants. Therefore, it is not seen that the viscoelastic foam of Donzis as modified by Moore would have morphology,

energy absorbing performance and recovery properties different from the viscoelastic foam of the present invention. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the flexible open cell polyurethane foam with a viscoelastic foam as taught by Moore motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

9. Claims 1-9, 11, 13, and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krent et al (US 5,423,087) in view of Bastin et al (US 6,051,624). Krent teaches a body protective device comprising a foam substrate and a cap layer of a thermoplastic material at least partially enclosing the foam substrate (figures 8 and 9). The cap layer is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam having a density from 2 to 4 lb/ft³ (column 7, lines 7-8). Krent discloses the substrate comprising a closed-cell polyethylene foam having a density of 6 to 11 lb/ft³ (column 7, lines 14-16). The cap layer has a plurality of vent holes 24 (figures 8 and 9). The cap layer is attached to the foam substrate by molding (column 7, lines 55-65, and column 10, lines 7-20). Figures 8 and 9 show that the cap layer and the substrate are attached to each other to form into one piece. Likewise, the cap layer is formed integrally with the foam substrate. Figures 3 and 14 show that the module 14 has the central zone provided with the holes 24 whereas the outer zone has no holes. Likewise, the module is more rigid adjacent the outer zone than adjacent the central zone. The skin is heat

Art Unit: 1771

laminated to the foam substrate. Likewise, the module is seamless. Krent does not teach the polyurethane foam being a viscoelastic foam. Bastin, however, teaches a viscoelastic polyurethane foam having been used widely in the protective clothing for motorcyclists. Therefore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the flexible open cell polyurethane foam with a viscoelastic foam as taught by Bastin motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

The resulting shock absorbing athletic equipment of Kent as modified by Bastin having a foam substrate made from a viscoelastic polyurethane foam which would inherently have a glass transition temperature within the claimed range because like material has like property. The same token is applied to energy absorptive property and the recovery property.

10. Claims 1-9, 11, 13, 16 and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krent et al (US 5,423,087) in view of Hager et al (US 6,391,935). Krent teaches a body protective device comprising a foam substrate and a cap layer of a thermoplastic material at least partially enclosing the foam substrate (figures 8 and 9). The cap layer is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam having a density from 2 to 4 lb/ft³ (column 7, lines 7-8). Krent discloses the substrate comprising a closed-cell polyethylene foam having a density of 6 to 11 lb/ft³ (column 7, lines 14-16). The cap layer has a plurality of

vent holes 24 (figures 8 and 9). The cap layer is attached to the foam substrate by molding (column 7, lines 55-65, and column 10, lines 7-20). Figures 8 and 9 show that the cap layer and the substrate are attached to each other to form into one piece. Likewise, the cap layer is formed integrally with the foam substrate. Figures 3 and 14 show that the module 14 has the central zone provided with the holes 24 whereas the outer zone has no holes. Likewise, the module is more rigid adjacent the outer zone than adjacent the central zone. The skin is heat laminated to the foam substrate. Likewise, the module is seamless. Krent does not teach the polyurethane foam being a viscoelastic foam. Hager, however, teaches a viscoelastic polyurethane foam having been used widely in the protective clothing for motorcyclists. Hager discloses the viscoelastic foam having a density within the claimed range. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the flexible open cell polyurethane foam with a viscoelastic foam as taught by Hager motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

The resulting shock absorbing athletic equipment of Krent as modified by Bastin having a foam substrate made from a viscoelastic polyurethane foam which would inherently have a glass transition temperature within the claimed range because like material has like property. The same token is applied to energy absorptive property and the recovery property.

11. Claims 1-9, 11, 13, and 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krent et al (US 5,423,087) in view of Moore, III (US 6,453,476). Krent teaches a body protective device comprising a foam substrate and a cap layer of a thermoplastic material at least partially enclosing the foam substrate (figures 8 and 9). The cap layer is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam having a density from 2 to 4 lb/ft³ (column 7, lines 7-8). Krent discloses the substrate comprising a closed-cell polyethylene foam having a density of 6 to 11 lb/ft³ (column 7, lines 14-16). The cap layer has a plurality of vent holes 24 (figures 8 and 9). The cap layer is attached to the foam substrate by molding (column 7, lines 55-65, and column 10, lines 7-20). Figures 8 and 9 show that the cap layer and the substrate are attached to each other to form into one piece. Likewise, the cap layer is formed integrally with the foam substrate. Figures 3 and 14 show that the module 14 has the central zone provided with the holes 24 whereas the outer zone has no holes. Likewise, the module is more rigid adjacent the outer zone than adjacent the central zone. The skin is heat laminated to the foam substrate. Likewise, the module is seamless. Krent does not teach the polyurethane foam being a viscoelastic foam. Moore, however, teaches a viscoelastic polyurethane foam having been used widely in the protective helmet for motorcyclists. Moore discloses the viscoelastic foam having a glass transition temperature within the claimed range. Moore is using the viscoelastic foam under the same trade name as Applicants. Therefore, it is not

Art Unit: 1771

seen that the viscoelastic foam of Krent as modified by Moore would have morphology, energy absorbing performance and recovery properties different from the viscoelastic foam of the present invention. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the polyurethane foam with a viscoelastic foam as taught by Moore motivated by the desire to provide better impact absorption because the viscoelastic foam exhibits slow recovery after compression.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1771

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

Hai Vo

**HA VO
PRIMARY EXAMINER**